

CLAIMS

What is claimed is:

- 1 1. A method for distributed upstream quality of service (QOS) processing in a
2 broadband access system, the method comprising:
3 measuring a quality of received packets sent by a modem in an upstream
4 channel at an upstream modem termination system;
5 determining whether the measured quality is within a predetermined range;
6 reporting an out-of-range quality for the received packets to a network
7 management server; and
8 modifying operating parameters for the upstream channel in accordance with
9 the measured quality, if an out-of-range quality is reported.
1 2. The method of Claim 1, wherein measuring a quality of received packets
2 comprises measuring a signal-to-noise ratio (SNR).
1 3. The method of Claim 1, wherein measuring a quality of received packets
2 comprises measuring a bit error rate (BER).
1 4. The method of Claim 1, wherein measuring a quality of received packets
2 comprises measuring a Forward Error Correction (FEC) quality measure.
1 5. The method of Claim 1, wherein if the quality measure is below a
2 predetermined lower limit for some averaged or weighted averaged value for a series
3 of packets, then the modem ID and the measured quality data of a particular packet or
4 average is reported to the network management server.
1 6. The method of Claim 5, wherein the network management server reassigns
2 the modem to a different downstream channel in the same or overlapping. sector,
3 which has a different operating frequency.

1 7. The method of Claim 5, wherein the network management server reassigns
2 the modem to a lower order modulation type.

1 8. The method of Claim 5, wherein the network management server reassigns
2 the modem to a lower symbol rate.

1 9. The method of Claim 5, wherein the network management server reassigns
2 the modem to a more robust Forward Error Correction scheme.

1 10. The method of Claim 5, wherein the network management server
2 reassigns the modem to a combination of a different frequency, a lower order
3 modulation type, a lower symbol rate, and a more robust Forward Error Correction
4 scheme.

5 11. The method of Claim 1, wherein if the quality measure is above a
6 predetermined upper limit for some averaged or weighted averaged value for a series
7 of packets, then the modem ID and the measured quality data of a particular packet or
8 average is reported to the network management server.

1 12. The method of Claim 11, wherein the network management server
2 reassigns the modem to a channel with a higher order modulation.

1 13. The method of Claim 11, wherein the network management server
2 reassigns the modem to a different type of modulation.

1 14. The method of Claim 11, wherein the network management server
2 reassigns the modem to a faster symbol rate.

1 15. The method of Claim 11, wherein the network management server
2 reassigns the modem to a lower Forward Error Correction scheme.

1 16. The method of Claim 11, wherein the network management server
2 reassigns the modem to a channel which has similar parameters but less traffic.

1 17. A method for distributed downstream quality of service (QOS) processing
2 in a broadband access system, the method comprising:

3 measuring a quality of received packets in a downstream channel at a modem;
4 comparing the measured quality with predetermined boundary conditions;
5 determining whether the measured quality is within the predetermined
6 boundary conditions;

7 sending an exception to a network management server, if the measured quality
8 is outside the boundary conditions; and

9 modifying operating parameters for the downstream channel in accordance
10 with the measured quality.

1 18. The method of Claim 17, wherein if the measured quality is below a lower
2 limit, the network management server reassign the modem to a different downstream
3 channel.

1 19. The method of Claim 17, wherein if the measured quality exceeds an
2 upper limit, then the modem sends an exception signal offering to move to a less
3 utilized channel.

1 20. The method of Claim 17, wherein if the measured quality exceeds an
2 upper limit, then the modem sends an exception signal offering to move to a channel
3 with a higher net data rate.

1 21. The method of Claim 17, wherein if the measured quality is below a lower
2 boundary condition, the exception is sent with a high priority, and if the measured
3 quality is above a high boundary condition, the exception is sent with a lower priority.

1 22. A method for distributed processing for optimal quality of service (QOS)
2 in a broadband access system, the method comprising:

3 a method for distributed upstream quality of service (QOS) processing, the
4 method comprising:
5 measuring a quality of received packets sent by a modem in an
6 upstream channel at an upstream modem termination system;
7 determining whether the measured quality is within a predetermined
8 range;
9 reporting an out-of-range quality for the received packets to a network
10 management server; and
11 modifying operating parameters for the upstream channel in
12 accordance with the measured quality, if an out-of-range quality is reported; and
13 a method for distributed downstream quality of service (QOS) processing, the
14 method comprising:
15 measuring a quality of received packets in a downstream channel at a
16 modem;
17 comparing the measured quality with predetermined boundary
18 conditions;
19 determining whether the measured quality is within the predetermined
20 boundary conditions;
21 sending an exception to a network management server, if the measured
22 quality is outside the boundary conditions; and
23 modifying operating parameters for the downstream channel in
24 accordance with the measured quality.